

extreme apex where the anterior and posterior angle meet there is a small tip armed with a tiny bristle. Armature otherwise as in all *cophurus*.

Female: VII sternite with apical angle tipped anteriorly more, the upper hump less prominent, the hook more prominent, the bay shallower and higher on the margin, making the distance from the hook to the bottom of the outline greater than in other *cophurus*.

Length: A medium sized flea. Male 2.25 mm, female 3.00 mm.

Remarks: This flea is the representative of the *cophurus* group east of Mt. Kilimanjaro, where *hemingwayi* ranges west and *cophurus* is found in Kenya and Uganda.

This flea bears the name of Dr. Rudolf G. Schmieder, of the University of Pennsylvania, Editor of Entomological News, and friend of the writer for 20 years who, through these years, has published many papers for him on world fleas.

This is the fourteenth flea described by the writer as new from Tanzania under U. S. National Science Foundation grants G14023 and GB1954.

---

**Copidosoma (Litomastix) naevia n. sp.**  
**A New Encyrtinae from Colorado**  
**(Chalcidoidea: Hymenoptera)**

OLE A. SÆTHER, University of Oslo, Department of Linnology,  
Blindern, Norway

The Encyrtid flies help to control aphids, psyllids, coccids and many other insects injurious to plants. Members of the subgenus *Litomastix* Thomson are parasitic on hemipterous, lepidopterous, and dipterous larvae (Thompson 1875 p. 172, Mayr 1876 p. 682, Mercet 1921 p. 442, Nikol'skaya 1952 p. 432, Ferrière 1953 pp. 29-30, Peck 1963 pp. 360-369).

During a survey by Dr. Kåre Elgmork, Oslo, in upper parts of North Boulder Creek, Colorado, imagines of a new species,

according to Nikol'skaya (1952), Ferrière (1953) and Erdős & Nowicky (1955) of the subgenus *Litomastix*, were occasionally found. Two female specimens were caught on July 9, 1960, at a height of about 3,500 m. Six females and one male were collected on July 13 on the slope of Navajo Peak in the uppermost part of the creek, between snowbanks, at a height of about 3,800 m (Elgmork & Sæther in preparation).

**Copidosoma (*Litomastix*) naevia n. sp.**

Female.—Head as wide as deep; frontovertex at the anterior ocellus as wide as one half the width of the head; ocelli in an obtuse-angled triangle, the posterior pair separated from the eye margins by their diameter, from occipital margin by about three quarters of their diameter; scrobes moderately deep; mandibles distinctly tridentate, the lower tooth larger (Fig. 1C). Antennae 0.80 mm in length; scape slender; pedicel 2.9 times as long as wide at apex; club solid, obliquely truncate, acuminate (Fig. 1B). Ratio of length of antennal joints to each other (radicula, scape, pedicel, 6 funicle segments, club) = 16:52:26:10:10.5:11:11:10:49. Ratio of greatest widths of antennal segments (same sequence) = 7:10:9:7.5:9:10.5:11:12:13:15.

Forewings 1.54 mm long by 0.65 mm wide and uniformly ciliated except the basal third; submarginal, marginal, stigmal and postmarginal veins approximately in the ratio of 133:9:18:11; submarginal vein with about 13 bristles; below the stigmal vein 4 spines of the same length as the usual bristles (Fig. 1F); stigmal vein cuneiform, with a cluster of 4 round white spots near apex; submarginal vein with a constriction at apex. Hind wings 1.14 mm long by 0.40 mm wide.

Middle tibia with 9 spines at the apex, and with several spines on the tarsal joints (Fig. 1A). Ratio of lengths of leg segments (coxa outwards)

front leg—43:18:81:76:16:11:9:9:16

middle leg—43:17:124:130:45:14:11:11:16

hind leg—42:20:110:130:35:18:15:14:19

Spur of middle tibia in same ratio : 37.

Head, axillae, and mesopleurae minutely reticulate (head more longitudinally reticulate anterior to eyes); coxae, trochanters, femora, tibiae except apical and basal, and scape longitudinally reticulate (coxae less longitudinally than the other); mesoscutum largely reticulate; scutellum coarsely reticulate longitudinally; tegulae minutely reticulate longitudinally.

Abdomen flattened and cordate.

Body black, in general, with a slight brownish tinge on abdomen. Head and prescutum with greenish and bluish reflections; mesoscutum and tip of scutellum with a greenish reflection; scutellum and mesopleurae with a coppery reflection; femora and tibiae with greenish and coppery reflections. Antennae brownish black. Forewings hyaline with a pale fuscous dot just below the marginal vein and surrounding the stigmal vein (Fig. 1F). The apex of fore and middle femora, base of all tibiae, basal two thirds of mesotibial spur and basal two thirds of first four tarsal joints whitish yellow; apical third of spur and first four tarsal joints subfuscous; fifth tarsal joints fuscous.

Length 1.4–1.8; length of holotype 1.8 mm; width of thorax of holotype 0.5 mm.

Male.—Head very little wider than deep; ratio of frontovertex at the anterior ocellus to width of head as 12.5:27; posterior pair of ocelli separated from the eye margins by their diameter and almost touching occipital margin; mandibles as in female, or perhaps a little more pointed. Antennae 0.85 mm in length; shape about as in female. Ratio of lengths of antennal joints to each other (radicula, scape, 6 funicle segments, club) = 16:62:26:12:13:14:14:14:12:34. Ratio of greatest width of antennal segments (same sequence) = 6:8.5:9:5.5:6.5:8:8.5:9.5:11. Bristles of male antennae very little longer than the female.

Forewings 1.39 mm by 0.57 mm wide; shape as in female; submarginal, marginal, stigmal, and postmarginal veins approximately in the ratio of 131:10:18:9; submarginal vein with about 11 bristles.

Middle tibia with 7 spines on the tip. Ratio of lengths of leg joints:

front leg—43:19:62:76:16:11:9:9:19

middle leg—40:23:100:116:32:16:13:12:19

hind leg—37:24:96:110:33:17:15:13:19

Spur of middle tibia in same ratio 29.

Reticulation as in the female. Coloration as in the female except that the abdomen is a little more brownish and apex of fore and middle femora, all tibiae, spurs, and tarsal joints more yellowish.

Coloration of wings as in the female.

Genitalia (Fig. 1D) rather stout.

Length of body 1.49 mm; width of thorax 0.43 mm.

Holotype, allotypes, and 4 paratypes at the Entomology Research Institute, Canada Department of Agriculture, Ottawa, Ontario; 3 paratypes in the author's collection.

This new species may be distinguished from all known European species by the fuscous dot on the forewings and by the male antenna of which the pedicel is larger than the first funicular segment. Its size is also greater than the most European species.

Of the 12 nearctic species presently placed in *Copidosoma* Ritz., sensu lato, (Peck 1963 pp. 360–369), 8 species seem to belong to the subgenus *Litomastix* Thomson. Only one of these species, *Copidosoma* (*Litomastix*) *truncatellum* Thomson, is circumpolar.

*C. truncatellum* s. str. (Dalm.) (Dalman 1820 pp. 168–169, Thomson 1875 p. 174, Mayr 1876 pp. 734, 739–740, Mercet 1921 pp. 456–457, Nikol'skaya 1963 p. 424) has no fuscous spot on the forewings, the male pedicel is shorter than the first funicular segment, the first funicular segment in the female is as long as wide, and the female measures only 0.9–1.2 mm in length. This species, however, is the nearest related of the European species.

*C. truncatellum floridana* Ashm. (Ashmead 1900 p. 365, Girault 1916 p. 49) does have the fuscous patch against stigmal

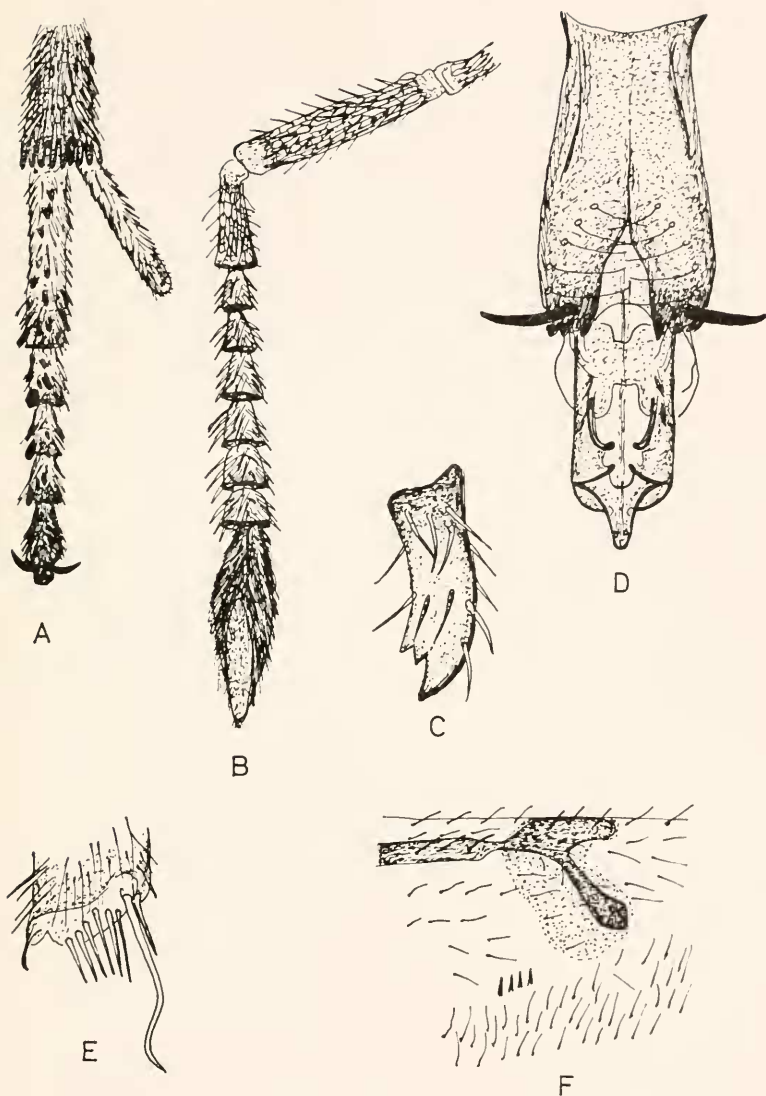


FIG. 1. *Litomastix naevia* n. sp.

A. Tarsal joints, apex of tibia and spur of middle leg of female.  
 B. Antenna of female. C. Mandible of female. D. Genitalia of male.  
 E. Apex of front tibia of female. F. Veins of forewing of female.

and marginal veins. But the mandibular teeth in the female are small and subequal, while *C. naevia* has a long first mandibular tooth. Its flagellum is not longer than the scape, whereas it is distinctly longer in *C. naevia*.

Of the 7 remaining nearctic species belonging to the subgenus *Litomastix*, namely *C. bakeri* (How.) (Howard 1898 pp. 237-238; Girault 1916 pp. 49-50; Snodgrass 1941 pp. 36-37, pl. 8, figs. F-H), *C. celaena* How. (Howard 1885 pp. 11-12), *C. gelechia* How. (Howard 1885 pp. 10-11, 21), *C. intermedium* How. (Howard 1885 p. 12), *C. koehleri* Blanch. (Doutt 1948 pp. 145-148), *C. lymani* How. (Howard 1907 pp. 102-103), and *C. turni* (Pack.) (Howard 1889 pp. 1888-1889), only *C. bakeri* is mentioned as having a fuscous patch along the stigmal vein and the pedicel in male antenna shorter than first funicular segment (Girault *loc. cit.*).

*C. bakeri* and *C. naevia* n. sp. both have a long first mandibular tooth, about same ratio of lengths and widths of joints in female antennae to each other, and, in contrast to other nearctic species of *Copidosoma*, the male antennae are very similar to the female antennae, only with the funicle joints somewhat longer and the club shorter. *C. bakeri*, however, has a minute third mandibular tooth in the female and the second tooth over 4 times the size of the third tooth, while they are subequal in *C. naevia*; the forewings of *C. bakeri* are lightly infuscated from head of the submarginal vein distad to the apex, while hyaline in *C. naevia*; the abdomen is less pointed and less cordate in *C. bakeri*; there are shorter hairs on caulis, and the *digiti volsellari* are shorter and pointing backwards (Snodgrass 1941, pl. 8, figs. F-H). *C. bakeri* seems, however, to be the nearest related previously known nearctic species.

*C. lymani* may also be closely related as the description is inadequate and the male unknown. It measures only 0.92 mm in length, however.

The Japanese species *L. maculata* Ishii (Ishii 1928 p. 115) also has a fuscous dot on the forewings. The male is unknown, the size is only 0.87 mm in the female, and there are only 4 spines on the tip of the middle tibiae. However, this species also seems closely related with *C. naevia* n. sp.

## ACKNOWLEDGMENTS

I am much indebted to Dr. Oswald Peck, Entomology Research Institute, Canada Department of Agriculture, Ottawa, for his critical reading of the manuscript, and his helpful suggestions for improvement.

## REFERENCES

- ASHMEAD, W. H. 1900. On the genera of the Chalcid-flies belonging to the subfamily Encyrtinae. Proc. U. S. Nat. Mus. 22: 323-412.
- DALMAN, J. V. 1820. Försök til uppställning af Insect-familjen Pteromalini, i synnerhet med afseende på de i Sverige funne arter. K. svenska VetenskAkad. Handl. 41: 123-172, 340-385.
- DOUTT, R. L. 1948. *Arrenoelavus*, a new genus of polyembryonic Encyrtidae (Hymenoptera). Pan-Pacific Ent. 24: 145-148.
- ELGMORK, K., and O. A. SÆTHER (in preparation). Distribution of invertebrates in a high mountain brook in the Colorado Rocky Mountains.
- ERDÖS, J., and S. NOVICKY. 1955. Genera Encyrtidarum regionis palearcticae. Beitr. Ent. 5: 165-202.
- FERRIÈRE, C. 1953. Encyrtides palearctiques (Hym. Chalcidoidea). Nouvelle table des genres avec notes et synonymies. Mitt. Schweiz. Ent. Ges. 26: 1-45.
- GIRAULT, A. A. 1916. New Encyrtidae from North America. Psyche 23: 41-50.
- HOWARD, L. O. 1885. Descriptions of North American Chalcididae from the collections of the U. S. Department of Agriculture and of Dr. C. V. Riley, with biological notes. (First paper). Together with a list of the described North American species of the family. Bull. U. S. Dept. Agr., Div. Ent. 5: 1-47.
- . 1889. The hymenopterous parasites of North American butterflies. In: SCUDDER, S. H. The butterflies of the Eastern United States and Canada with special reference to New England. Private Press, Cambridge, Mass. 3: 1869-1911.
- HOWARD, L. O. 1898. On some parasitic insects of the subfamily Encyrtinae. Proc. U. S. Nat. Mus. 21: 231-248.
- . 1907. A new Canadian species of *Copidosoma*. Canad. Ent. 39: 102-103.
- ISHII, T. 1928. The Encyrtinae of Japan. Bull. Imp. Agric. Exp. Sta. Japan 3: 79-160.
- MAYR, G. 1876. Die europäischen Encyrtiden. Verh. zool.-bot. Ges. Wien 25: 675-778.
- MERCET, R. G. 1921. Hymenópteros. Fam. Encírtidos. Fauna Ibérica. Madrid. 732 pp.

- NIKOL'SKAYA, M. N. 1952. The chalcid fauna of the U.S.S.R. (Chalcidoidea). *Tabl. anal. Faune U.R.S.S.*, 44. (1963. Translated from Russian. Israel Program for scientific translations, Jerusalem, pp. 593).
- PECK, O. 1963. A catalogue of the nearctic Chalcidoidea (Insecta: Hymenoptera). *Canad. Ent.*, suppl. 30: 1-1092.
- SNODGRASS, R. E. 1941. The male genitalia of Hymenoptera. *Smithsonian Misc. Coll.* 99(14): 1-86.
- THOMPSON, C. G. 1875. *Skandinaviens Hymenoptera*. 4'e delen innehållande släktet *Pteromalus Svederus*. Lund. 259 pp.

---

### Nomenclature Notice

Possible use of the plenary powers by the Commission is announced in connection with the following names, listed by case number: 1564, Neotype for **Acarus telarius** Linnaeus, 1758 (Acarina). 1722, Suppression of **Anopheles africanus** Theobald, 1901 (Diptera). 1725, Removal of homonymy of **CHRYSOPINAE** in Neuroptera and Diptera. 1613, Type-species for **Erbula** Stal, 1783 (Hemiptera).

Send comments with case number to International Commission on Zoological Nomenclature, c/o British Museum (N.H.), Cromwell Road, London S.W. 7, England. (See *Bull. zool. Nomencl.* 22, pt. 5/6.)

### Obituary

In deep sorrow, we record the accidental death by drowning of Dr. **Harold J. Grant, Jr.**, in Trinidad, on February 27th. Dr. Grant was Curator and Head of the Department of Entomology of the Academy of Natural Sciences of Philadelphia, Editor of the Transactions of the American Entomological Society, and Associate Editor of Entomological News. A biographical memorial will appear in a later issue of this publication.